



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

41-09-06

Log Event A

Borehole Information

Farm : <u>SX</u>	Tank : <u>SX-109</u>	Site Number : <u>299-W23-106</u>
N-Coord : <u>35,297</u>	W-Coord : <u>75,872</u>	TOC Elevation : <u>661.47</u>
Water Level, ft :	Date Drilled : <u>3/20/1962</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>75</u>	

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>03/1995</u>	Calibration Reference : <u>GJPO-HAN-1</u>	

Logging Information

Log Run Number : <u>1</u>	Log Run Date : <u>6/13/1995</u>	Logging Engineer: <u>Dave Traub</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>73.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Borehole

41-09-06**Log Event A**

Analysis Information

Analyst : P.D. HenwoodData Processing Reference : Data Analysis Manual Ver. 1Analysis Date : 8/16/1995**Analysis Notes :**

This borehole was logged in one run. The pre- and post-survey field verification spectra showed consistent activities, indicating the logging system operated properly during data collection. Energy calibrations differed because of gain drift in the instrumentation. Gain drifts during data collection necessitated energy versus channel number recalibrations during processing of the data to maintain proper peak identification. No depth overlaps occurred in this borehole, because logging was completed in one run.

The casing thickness was 5/16 (0.3125) inches. The correction factors for a 0.33-in.-thick steel casing were used during analysis, which results in an almost negligible over-estimation of the radionuclide concentration.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank SX-109.

Log Plot Notes:

Three log plots are provided. The Cs-137 concentrations are provided in a separate log plot to document the relative concentrations and shape of the distribution. A plot of naturally occurring radionuclides (K-40, U-238, and Th-232) is also provided, which can be used for lithology interpretation. A combination plot includes logs of Cs-137, natural gamma, total gamma derived from the spectral data, and the latest available data from the WHC Tank Farms gross gamma logging. The energy peaks from which the radionuclide concentrations were derived are included in the headings for the Cs-137 and natural gamma plots.

A log scale was selected for the Cs-137 log. The natural gamma, total gamma, and gross gamma logs are plotted on a linear scale.

The statistical uncertainty in a measurement is represented by error bars on the log plots where appropriate. This uncertainty is reported at the 95-percent confidence interval. The minimum detectable activity (MDA) is represented as an open circle on the plots. The MDA of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible. If the reported concentration is slightly above the MDA, the 95-percent confidence interval may extend below the MDA value and cannot be stated with 95-percent certainty.

The slightly elevated MDA at TD is the result of the data being collected for only 10 seconds rather than the usual 100 seconds.

The Tank Farms gross gamma plot is the latest available from WHC. With the exception of scale changes, no attempt has been made to adjust for depth discrepancies or other potential problems.